



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶:
G01V 1/20, 1/36

A1

(11) International Publication Number: WO 99/60421

(43) International Publication Date: 25 November 1999 (25.11.99)

(21) International Application Number: PCT/GB99/01544

(22) International Filing Date: 14 May 1999 (14.05.99)

(30) Priority Data: 20 May 1998 (20.05.98) GB
9810706.3

(71) Applicant (for all designated States except CA FR US): GECO AS [NO/NO]; Schlumberger House, Solbraveien 23, N-1372 Asker (NO).

(71) Applicant (for CA only): SCHLUMBERGER CANADA LIMITED [CA/CA]; 24th floor, Monenco Place, 801 6th Avenue, S.W., Calgary, Alberta T2P 3W2 (CA).

(71) Applicant (for FR only): SERVICES PETROLIERS SCHLUMBERGER [FR/FR]; 42, rue Saint Dominique, F-75007 Paris (FR).

(72) Inventors; and
(75) Inventors/Applicants (for US only): OZBEK, Ali [TR/GB]; 17 Falkner Close, Milton, Cambridge CB4 6EF (GB). MARTIN, James [US/GB]; 22 Margett Street, Cottenham, Cambridge CB4 4QY (GB). LUNDE, Nils [NO/NO]; Kirkeveien 65B, N-1344 Haslum (NO). BITTLESTON, Simon, Hastings [GB/NO]; Bjornsvikveien 27, N-1312 Slepnden (NO).

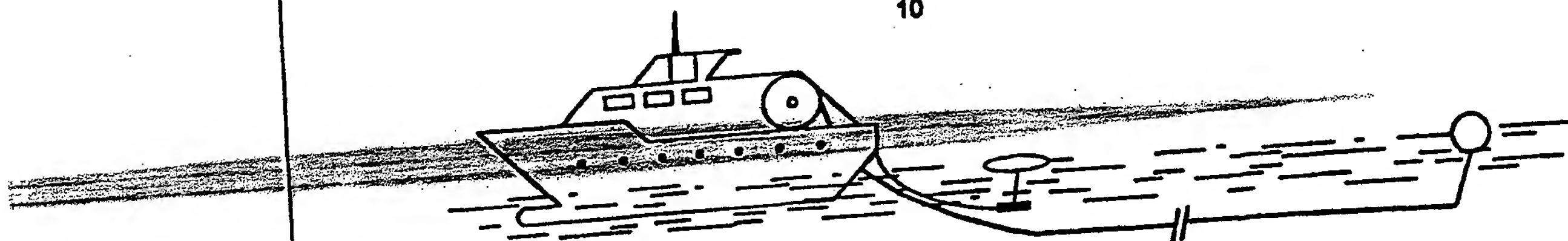
(74) Agent: STOOLE, Brian, David; Geco-Prakla (UK) Limited, Schlumberger House, Buckingham Gate, Gatwick, West Sussex RH6 0NZ (GB).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: MARINE SEISMIC ACQUISITION SYSTEM AND METHOD

10



(57) Abstract

A method and system for performing a marine seismic survey is described, including towing at least one seismic streamer comprising a plurality of hydrophones distributed at average intervals of not more than 500 cm therealong in the water over the area to be surveyed; directing acoustic signals down through the water and into the earth beneath; receiving with the hydrophones seismic signals reflected from strata in the earth beneath the water; digitizing the output of each hydrophone separately; and filtering the output to reduce the noise present in the output and to generate a signal with a reduced noise content wherein the filtering process uses as further input the digitized output of at least one nearby hydrophone. The filtering is applied to single sensor recordings prior to group-forming and thus able to detect and reduce coherent noise with a coherency length of 20 meters or less. It reduces noise such as streamer or bulge noise.

BEST AVAILABLE COPY